REMARKS

In the foregoing amendments, all the previous presented claims, including claims 1-26, were cancelled; and new claims 27-40 were added to the application. New claims 27-29 and 35-40 are composition claims that require an amount of black currant anthocyanin in the range of 5 to 25% by weight. New claims 30-34 are process claims defining a process for producing black currant anthocyanin-containing compositions for food, where a charged reverse osmosis membrane is used to purify black currant juice. Claims 27-40 are in the application for consideration by the examiner.

The new claims in this response do not have the problems set forth in the claim objections set forth on page 6 of the outstanding Office action. In addition, it is respectfully submitted that new claims 27-40 particularly point out and distinctly claim the subject matter regarded as the invention within the meaning of 35 U.S.C. § 112, second paragraph. Therefore, applicant respectfully requests that the examiner reconsider and withdraw any rejection of the claims under the second paragraph of 35 U.S.C. § 112.

Applicant desires to express thanks to Examiner Jagoe for the courtesies extended to the undersigned in a personal interview on July 31, 2003. At this interview, the prior art teachings were discussed and it was explained that none of the cited prior art proposes a charge reverse osmosis membrane, which was acknowledged by the examiner. When discussing the teachings of Nakhmedov, it was difficult to precisely determine what these teachings could suggest to one of ordinary skill in the art, because the English abstract thereof

was incomplete. At the interview, the examiner indicated that she would attempt to obtain an English translation of the teachings of Nakhmedov.

In addition, during the interview, it was discovered that the third preliminary amendment and the third Information Disclosure Statement (IDS) filed on December 4, 2002, were not in the application file. At the interview, the undersigned showed the examiner a copy of the postcard receipt evidencing the fact that the IDS was filed before the first action on the merits, namely, on December 4, 2002. The examiner indicated that she will consider the documents as set forth in the third IDS without any additional cost to the client.

With respect to the third preliminary amendment and the numbering of the claims; in the foregoing amendments, applicant cancelled all the previous claims including claims 1-26, and set forth a new set of claims, namely, claims 27-40. It is believed that amending the claims in this manner will remove any ambiguity in the numbering of the claims, which could have appeared previously in the claims.

Claims 8-12 were rejected under 35 U.S.C. § 103(a) as being unpatenable over U.S. patent No. 4,643,902 of Lawhon (Lawhon). The statement of this rejection is set forth on page 10 through the top of page 11 of the Official action. Applicant respectfully submits that the teachings of Lawhon do not describe or suggest the presently claimed invention within the meaning of 35 U.S.C. § 103.

The teachings of Lawhon propose a process directed to producing sterile and concentrated juices by dividing a juice which is intended to be sterilized into two fractions, a low molecular weight fraction containing flavor and aroma components and a high molecular weight fraction containing microorganisms and enzymes; and heat-sterilizing and inactivating the high molecular weight fraction only and then the recombining the inactivated high molecular weight fraction and the low molecular weight fraction containing flavor and aroma. The presently claimed invention is directed to a completely different process for concentrating anthocyanin components by using a charged reverse osmosis membrane.

The teachings of Lawhon do not contemplate or suggest the use of a charged reversed osmosis membrane. For this reason alone, these teachings cannot contemplate or suggest the presently claimed invention, especially as set forth in claims 30-40. The Official action noted that Lawhon proposes the use of an ion-exchanged column. However, the use of an ion-exchange column is quite different than use of a charged membrane for reverse osmosis, as required in the present claims. In the process proposed by Lawhon, the UF membrane that fractionates polymers has a molecular weight of 100,000, 50,000 or 30,000 depending on their molecular weight is used as the example 2 shows. On the contrary, in the process of the present claims, a charged reverse osmosis membrane fractionates polymers depending on a charge of polymer is used. Accordingly, the substances to be fractionated are different in the two processes, and the principles of the fractionation are different in two

the processes. Therefore, applicant respectfully submits that one cannot contemplate or suggest the other.

Furthermore, in the process proposed by Lawhon, an ion exchange column is used to remove acid components. As example 6 of Lawhon shows, the column is weak alkaline ion exchange resin used to adsorb acids.

In contrast thereto, the resin such as Amberlite 200CT that can be used in a process of the presently claimed invention is a strong acidic ion exchange resin. The property of the resin usable in the process of the presently claimed invention is different from the resin used in the process proposed by Lawhon. In the process of the presently claimed invention, acidic components can be previously removed by using a charged reverse osmosis membrane. Therefore, in the process of applicant's claims, the ion exchange resin can be used to adsorb anthocyanins and concentrate them.

The end of the Office action stated that it is prima facie obvious to substitute to equivalents, motivated by the reasonable expectation that the respective species will behave in a comparable manner or give comparable results in comparable circumstances. The applicant cannot agree with this position. The process proposed by Lawhon is directed to producing sterile and concentrated juices containing strong flavors. The process proposed by Lawhon cannot produce an anthocyanin-concentrated composition having 5 to 25% (1 to 25%) by weight of black currant anthocyanin, as presently claimed, which can be produced by the process of applicant's claims. Furthermore, as shown in table I on page 18 of the present application, blueberry, black currant, and

black chokeberry concentrates have different amounts of different ingredients. Therefore, applicant respectfully submits that one of ordinary skill in the art would not reasonably expect that a process for blueberry or black chokeberry concentrates or the process proposed by Lawhon would also work in the same manner for black currant juice concentrate, as presently claim.

For the foregoing reasons, applicant respectfully submits that the presently claimed invention is distinguishable from the teachings of Lawhon within the meaning of 35 U.S.C. § 103. Therefore, applicant respectfully requests that the examiner reconsider and withdraw this rejection.

Claims 1-7, 13-14, and 18-25 were rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, as obvious under 35 U.S.C. § 103(a) over Lawhon in view of Nakhmedov *et al.* in Koservanaya I Ovoshchesushil'naya Promyshlennost (Nakhmedov) and British patent specification number 1,007,751 (GB 1007751). The statement of this rejection is set forth on pages 11-13 of the Official action. For example, the Official action stated that since Nakhmedov describes that anthocyanin glucosides such as those obtained from bilberries are useful visual acuity enhancing night vision, it would have been obvious for those skilled in the art to employ black currant anthocyanins to improve the visual acuity.

New claims 37 to 40 correspond to previously presented claims 24 to 26 and are directed to a composition or a medicinal food or drink containing black currant anthocyanin, which has effect for improving visual function or for improving the fluidity and/or in effect for lowering blood pressure. In the past,

as pharmacologic effects of anthocyanins, the effect of improving visual function of blueberry anthocyanin as food and a pharmacologic effect of anthocyanidin that is aglycone moiety of anthocyanin on peripheral arteries as a pharmaceutical have been reported. However, with respect to the effect of improving visual function of blueberry anthocyanin, blueberry anthocyanin improves visual function in subjective symptoms and flicker test but it does not improve visual function in subjective epidoptometry, i.e., 30cm visual acuity and 5m visual acuity, and objective epidoptometry, i.e., a measurement of refracting power. These results show that the anthocyanin takes effects on central nerve not on optic nerve (See from the 8th line from the bottom on page 9 to 5th line on page 11 of applicant's specification). On the contrary, the black currant anthocyanin of the present invention improves visual function in a measurement of refracting power (Example 1, Tables 4 and 5 in applicant specification). This result shows that unlike blueberry anthocyanin, black currant anthocyanin improves visual function *per se*. Furthermore, with respect to subjective symptoms, the black currant anthocyanin has better effect for improving visual function than anthocyanin derived from other fruits (Example 1 and Table 6 in applicant's specification).

Along these lines, since the teachings of Lawhon do not contemplate or suggest black currant, as admitted in the Office action, applicant does understand how these combined teachings can either anticipate or render the presently claimed invention obvious. The teaching of Nakhmedov and British do not cure or rectify the deficiencies in the teaching of Lawhon. For example,

while Nakhmedov discusses that waste from black currant showed various ingredients, these teachings do not explain the concentrations of the ingredients in a manner understandable to one of ordinary skill in the art. In particular, applicant cannot understand the meaning of the expression "mg %" set forth in Nakhmedov.

Nakhmedov proposes that wastes from black currant contain 5-10% solids. The Office action stated that the content of the solids is included in the content (1-25% or 5-25%) as recited in original claim 1 of the present application. Applicant respectfully submits that such an interpretation of Nakhmedov may not be accurate. For example, the content of 5-10% in Nakhmedov is the solids content in whole wastes or, in other words, the percent of solid wastes in the total amount of wastes including both solids and liquids. New claim 27, which corresponds to original claim 1, requires 5-25% by weight of black currant anthocyanins on the basis of solid matters. Thus, while Nakhmedov proposed black currant contains 5-10% solids, new claim 27 requires 5-25% by weight of black currant anthocyanin on the basis of solid matter. Since the units of measure in applicant's claims "% by weight on the basis of solid matter," is different from the unit of measure "% solids" as proposed in Nakhmedov, the amounts proposed in Nakhmedov cannot be equated to the amounts set forth in applicant's claims.

The teachings of the British patent specification also do not contemplate or suggest black currant concentrate and, therefore, cannot contemplate or

suggest specific amounts of black currant anthocyanin, as required in the present claims.

In the prior art, it was difficult, if not impossible, to obtain a black currant concentrate containing 1% by weight or more of black currant anthocyanin and, prior to applicant's invention, the prior art did not do this. The present invention discovered a process using a reversed charged osmosis membrane can concentrate a solution to have 1% by weight or more of black currant anthocyanin, together with obtaining acceptable acidity and stability against spoilage. The teachings of Nakhmedov, as well as the other cited teachings, do not provide and cannot suggest a black currant composition containing 5 to 25% by weight of black currant anthocyanin, on the basis of solid matters as required in the present claims.

An advantage of the composition of the present claims is that it can be used as a food or a food additive. This is because the composition of the present claims has excellent stability against spoilage and reduced acidity. In this connection, it is respectfully noted that the teachings of Nakhmedov state that the materials proposed therein were contaminated and spoiled easily, meaning it is not suitable as a food or a food additive. This statement in Nakhmedov evidences the fact that the composition proposed therein is different from that defined in the present claims.

The pharmacologic effects of anthocyanins other than those derived from black currant anthocyanin on peripheral arteries are the effect as pharmaceuticals not as foods. The presently claimed composition made it

possible to utilize the pharmacologic effects of black currant anthocyanin in foods. Furthermore, the only previously known effect of anthocyanin was the effect on arteries. On the contrary, black currant anthocyanin of the present invention acts on blood to improve blood fluidity and lower blood pressure as the result of Example 12 of the present specification shows.

For the reason set forth above, applicant respectfully submits that the present claims are distinguishable from the teachings of Lawhon, Nakhmedov, and/or GB1007751 within the meaning of 35 U.S.C. § 102 or 35 U.S.C. § 103. Therefore, applicant respectfully requests that the examiner reconsider and withdraw this rejection.

For the foregoing reasons, applicant respectfully requests that the examiner reconsider and withdraw all the objections and rejections set forth in the Official action mailed April 10, 2003, so that all new claims 27-40 will be allowed.

The foregoing is a complete and proper response to the Official action mailed April 10, 2003. Should the examiner have any comments or questions, it is respectfully requested that the undersigned be telephoned at the below listed number to resolve any outstanding issues.

In the event that this paper is not timely filed, applicant hereby petitions for an appropriate extension of time. The Commissioner is hereby authorized to charge the fee therefor, as well as any deficiency in the payment of the required fee(s) or credit any overpayment, to our deposit account No. 22-0256.

Respectfully submitted,
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